



6712-01

**FEDERAL COMMUNICATIONS COMMISSION**

**47 CFR Parts 2 and 22**

**GN Docket No. 13-114; FCC 13-66**

**Expanding Access to Broadband and Encouraging Innovation through Establishment of an Air-Ground Mobile Broadband Secondary Service for Passengers Aboard Aircraft in the 14.0-14.5 GHz Band**

**AGENCY:** Federal Communications Commission.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** The Federal Communications Commission (Commission) proposes an allocation in the 14.0-14.5 GHz band to permit operation of an air-ground mobile broadband service in the contiguous United States. The Commission proposes a secondary allocation for air-ground mobile broadband, and requires new air-ground mobile broadband licensees to avoid harmful interference to the Fixed-Satellite Service and prior-licensed Federal Fixed Service, Mobile Service, and Space Research Service users in the 14.0-14.5 GHz band, and to coordinate with the Radio Astronomy Service to avoid interference to radio astronomy observations. The Commission also proposes to license air-ground mobile broadband on a nationwide basis, and seeks comment on whether it should license air-ground mobile broadband in two spectrum blocks of 250 megahertz each, one spectrum block of 500 megahertz, or some other spectrum block size. The Commission proposes to grant licenses by auction in the case of mutually exclusive applications.

**DATES:** Submit comments on or before [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], and replies on or before [INSERT DATE 75 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Paperwork Reduction Act (PRA) comments should be on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** Address comments concerning this proposed rule to the Secretary, Federal Communications Commission, 445 12<sup>th</sup> Street, SW, Washington DC 20554. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12<sup>th</sup> Street, SW, Washington DC 20554.

Commercial overnight mail other than U.S. Postal Service Express Mail and Priority Mail must be sent to the Secretary, Federal Communications Commission, 9300 East Hampton Drive, Capitol Heights, MD 20743.

PRA comments should be submitted to Cathy Williams, Federal Communications Commission via email at [PRA@fcc.gov](mailto:PRA@fcc.gov) and [Cathy.Williams@fcc.gov](mailto:Cathy.Williams@fcc.gov) and Nicholas A. Fraser, Office of Management and Budget via fax at 202-395-5167 or via email to [Nicholas\\_A\\_Fraser@omb.eop.gov](mailto:Nicholas_A_Fraser@omb.eop.gov).

**SUPPLEMENTARY INFORMATION:** This is a summary of the Notice of Proposed Rulemaking, GN Docket No.13-114, FCC 13-66, adopted May 9, 2013, and released May 9, 2013. The full text of the Notice of Proposed Rulemaking is available for inspection and copying during normal business hours in the FCC Reference Center, 445 12<sup>th</sup> Street, SW, Washington, DC 20554. The document also is available for download over the Internet at [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0513/FCC-11-76A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0513/FCC-11-76A1.pdf).

The complete text also may be purchased from the Commission's copy contractor, Best Copy and Printing, Inc. (BCPI), located in Room CY-B402, 445 12<sup>th</sup> Street, SW, Washington, DC 20554. Customers may contact BCPI at its web site: <http://www.bcpweb.com> or call 1-800-378-3160.

**Comment Filing Procedures:**

Pursuant to 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated above. Comments may be filed electronically or by hand delivery. See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) at <http://fjallfoss.fcc.gov/ecfs2/>. See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).
- Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12<sup>th</sup> St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.

- People with Disabilities: Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: [FCC504@fcc.gov](mailto:FCC504@fcc.gov), phone: 202-418-0530 or TTY: 202-418-0432.

**FOR FURTHER INFORMATION CONTACT:** Howard Griboff or Sean O'More, Policy

Division, International Bureau, FCC, (202) 418-1460 or via the Internet at:

[Howard.Griboff@fcc.gov](mailto:Howard.Griboff@fcc.gov) and [Sean.O'More@fcc.gov](mailto:Sean.O'More@fcc.gov). On PRA matters contact Cathy Williams,

Office of the Managing Director, FCC, (202) 418-2918 or via the Internet at:

[Cathy.Williams@fcc.gov](mailto:Cathy.Williams@fcc.gov).

## **Paperwork Reduction Act Analysis:**

The Notice of Proposed Rulemaking contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and the Budget to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), the Commission seeks comment on how it might further reduce the information collection burden for small business concerns with fewer than 25 employees.

Comments should address: (a) Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, [Public Law 107-198](#), see [44 U.S.C. 3506\(c\)\(4\)](#), we seek specific comment on how we might “further reduce the information collection burden for small business concerns with fewer than 25 employees.”

To view or obtain a copy of this information collection request (ICR) submitted to OMB: (1) Go to this OMB/GSA Web page: <http://www.reginfo.gov/public/do/PRAMain>, (2) look for the section of the Web page called “Currently Under Review,” (3) click on the downward-pointing arrow in the “Select Agency” box below the “Currently Under Review” heading, (4) select “Federal Communications Commission” from the list of agencies presented in the “Select Agency” box, (5) click the “Submit” button to the right of the “Select Agency” box, and (6) when the list of FCC ICRs

currently under review appears, look for the OMB control number of this ICR as shown in the Supplementary Information section below (or its title if there is no OMB control number) and then click on the ICR Reference Number. A copy of the FCC submission to OMB will be displayed.

**OMB Control Number:** 3060-XXXX.

**Title:** Air-Ground Mobile Broadband.

**Form Number:** Not Applicable.

**Type of Review:** New Information Collection.

**Respondents:** Business or other for-profit entities.

**Number of Respondents and Responses:** 15 respondents; 15 responses.

**Estimated Hours per Response:** 6 hours (average).

**Frequency of Response:** On occasion reporting requirement.

**Total Annual Burden:** 90 hours.

**Total Annual Costs:** \$8,250.

**Obligation to Respond:** Required to obtain or retain benefits. The statutory authority for this collection is contained in sections 4(i), 4(j), 7(a), 302(a), 303(c), 303(e), 303(f), 303(g), 303(j), 303(r) and 303(y) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), 157(a), 302(a), 303(c), 303(e), 303(f), 303(g), 303(j), 303(r), 303(y).

**Confidentiality:** The Commission does not provide assurances of confidentiality to entities submitting their filings and applications. However, entities may request confidential treatment of their applications and filings under 47 CFR 0.459 of the Commission's rules. With regard to certifications filed pursuant to part 2 of the Commission's rules, parties receive minimal exemption from the Freedom of Information Act (FOIA).

**Privacy Impact Assessment:** No impact(s).

**Needs and Uses:** The purpose of this new information collection is to address the Paperwork Reduction Act (PRA) requirements proposed in the Commission's NPRM (FCC 13-66) to establish rules for the licensing of the air-ground broadband service. In the NPRM, the Commission proposes new information collection requirements applicable to potential air-ground broadband service licensees. The proposed rule changes include applying the information requirements and procedures currently in part 1 of the Commission's rules to applications for air-ground mobile broadband licenses. The Notice also proposes to require new air-ground mobile broadband licensees to complete coordination agreements with licensees in the National Aeronautics and Space Administration's Tracking and Data Relay Satellite Service and with radio astronomy observatories. Further, the Notice invites comment on whether to adopt interim reporting requirements to ensure that licensees are making timely and quantifiable progress on their obligations to construct and provide service. If the Commission adopted a rule requiring interim reporting requirements, the rule would presumably require the licensee to demonstrate in some manner that it has taken efforts to construct its air-ground mobile broadband system. In addition, the Notice proposes requiring licensees to file a notification within 15 days of the end of their ten-year license term demonstrating that they have met their build-out requirements. Specifically, each construction notification would include electronic coverage maps and supporting documentation, which must be truthful and accurate and must not omit material information that is necessary for the Commission to determine compliance with its construction requirement. Also, the Notice proposes requiring applicants for renewal licenses to file a detailed renewal showing, demonstrating that they are providing service to the public or are using the spectrum for private, internal communication to the extent permitted by the Commission, and substantially complying with the Communications Act, and the Commission's rules and policies, including any applicable performance requirements.

## **Summary of Notice of Proposed Rulemaking**

In the Notice of Proposed Rulemaking (Notice), the Federal Communications Commission (Commission) continues to address consumer demand for more broadband access aboard aircraft. The Commission proposes to establish an air-ground mobile broadband service to help meet demand from travelers to connect to a full range of communications services while flying in the contiguous United States.

The Commission proposes to add a secondary allocation to the 14.0-14.5 GHz band for air-ground mobile broadband. The 14.0-14.5 GHz band is allocated on a primary basis to the Fixed-Satellite Service (FSS) for Earth-to-space communications, and is currently used by several geostationary-orbit (GSO) FSS systems. The 14.0-14.2 GHz sub-band is allocated on a secondary basis to the Space Research Service, and is used by the National Aeronautics and Space Administration's Tracking and Data Relay Satellite Service (TDRSS). The 14.4-14.5 GHz sub-band is allocated on a secondary basis to the Fixed Service and the Mobile Service for Federal government use. The 14.47-14.5 GHz sub-band is allocated to the Radio Astronomy Service (RAS) on a permissive basis.

Air-ground mobile broadband would use spatial diversity to avoid interference to the FSS, transmitting only northward from each base station, while GSO FSS satellites are all south of the United States. Airborne stations would avoid interference to the FSS by transmitting only downward. The Commission proposes to require air-ground mobile broadband licensees to coordinate with TDRSS licensees and RAS sites as a condition of beginning operations. The Commission also notes that air-ground mobile broadband licenses will be required to avoid causing harmful interference to prior-licensed Federal users, and seeks comment on whether it should impose coordination requirements with Federal licensees on air-ground mobile broadband licensees.

The Commission proposes to license air-ground mobile broadband on a nationwide basis, and requests comment on whether air-ground mobile broadband should be licensed in two

spectrum blocks of 250 megahertz each, one spectrum block of 500 megahertz, or some other spectrum block size. The Commission proposes to adopt a geographic area licensing approach for the 14.0-14.5 GHz band that would permit the filing and acceptance of mutually exclusive applications that it would be required to resolve through competitive bidding consistent with the mandate of section 309(j) of the Communications Act. Accordingly, the Commission seeks comment on a number of proposals relating to competitive bidding for licenses for spectrum in the 14.0-14.5 GHz band. The Commission proposes to conduct any auction for air-ground mobile broadband licenses in the 14.0-14.5 GHz band in conformity with the general competitive bidding rules set forth in part 1, subpart Q of the Commission's rules, 47 CFR 1.2101-1.2114, and substantially consistent with the competitive bidding procedures that it has employed in previous auctions. Specifically, the Commission proposes to employ the part 1 rules governing competitive bidding design, designated entity preferences, unjust enrichment, application and payment procedures, reporting requirements, and the prohibition on certain communications between auction applicants. Such rules would be subject to any modifications that the Commission may adopt for its part 1 general competitive bidding rules in the future. In addition, consistent with the Commission's long-standing approach, auction-specific matters such as the competitive bidding design and mechanisms, as well as minimum opening bids and/or reserve prices, would be determined by the Wireless Telecommunications Bureau pursuant to its delegated authority.

The Commission also proposes to make small business bidding credits available for the 14.0-14.5 GHz air-ground mobile broadband service. Its proposal to offer small business bidding credits is based on the belief that deployment and operational costs may be significantly lower than for other previously-authorized nationwide services such as the Direct Broadcast Satellite Service and Digital Audio Radio Satellite Service, because the necessary infrastructure may be less costly. The Commission also suggests that the capital requirements of providing commercial air-ground mobile broadband service in the 14.0-14.5 GHz band may generally be similar to the



capital requirements of providing commercial air-ground service in the 800 MHz band, a nationwide service for which the Commission decided to offer bidding credits. The Commission seeks comment on whether small businesses may be able to attract the necessary capital to provide air-ground mobile broadband service, particularly if they are assisted by bidding credits.

The Commission proposes to use the same small business definitions it has adopted for other capital-intensive services that serve large geographic areas. Specifically, it proposes to define a small business as an entity with average annual gross revenues for the three preceding years not exceeding \$40 million, and to define a very small business as an entity with average annual gross revenues for the three preceding years not exceeding \$15 million. The Commission also proposes a 15 percent bidding credit for small businesses and a 25 percent bidding credit for very small businesses, as set forth in its standardized schedule at 47 CFR 1.2110(f)(2). These are the same tiered small business definitions and bidding credits that the Commission adopted for licenses for the 800 MHz commercial Air-Ground Radiotelephone Service, and for EAG-based licenses in the upper and lower 700 MHz bands.

The Commission also seeks comment on whether its proposed designated entity provisions, if applied to an air-ground mobile broadband service, would promote participation by businesses owned by minorities and by women, as well as participation by rural telephone companies. To the extent that commenters propose additional provisions to enhance participation by minority-owned or women-owned businesses, commenters should address how the Commission should craft such provisions to meet the relevant standards of judicial review.

The Commission proposes technical standards to minimize the possibility of interference from air-ground mobile broadband to the FSS. The Commission also proposes to require that air-ground mobile broadband-equipped aircraft cease operations when flying in Canadian airspace. Finally, the Commission proposes to require air-ground mobile broadband licensees to adhere to the provisions of the Communications Assistance to Law Enforcement Act.

## **Initial Regulatory Flexibility Analysis**

As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the Notice of Proposed Rulemaking (Notice) in GN Docket No. 13-114. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines specified in the Notice for comments. The Commission will send a copy of the Notice, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).<sup>2</sup> In addition, the Notice and IRFA (or summaries thereof) will be published in the Federal Register.<sup>3</sup>

### **A. Need for, and Objectives of, the Notice**

The Notice seeks to promote more intensive use of spectrum and spectrum sharing in order to provide passengers aboard aircraft flying over the United States with expanded access to broadband service. The air-ground mobile broadband service proposed would allow terrestrial-based air-ground mobile broadband systems to provide service in the 14.0-14.5 GHz band, while at the same time protecting Fixed-Satellite Service (FSS) operations in the band and accommodating other users of the band, including Federal government licensees in the Fixed and Mobile Services, the Space Research Service, and the Radio Astronomy Service (RAS).

### **B. Legal Basis**

The proposed action is authorized pursuant to sections 4(i), 4(j), 7(a), 302(a), 303(c), 303(e), 303(f), 303(g), 303(j), 303(r), and 303(y) of the Communications Act of 1934, as

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<sup>1</sup> See 5 U.S.C. 603. The RFA, see 5 U.S.C. 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996, (SBREFA) Pub. L. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> See 5 U.S.C. 603(a).

<sup>3</sup> See 5 U.S.C. 603(a).

amended, 47 U.S.C. 154(i), 154(j), 157(a), 302(a), 303(c), 303(e), 303(f), 303(g), 303(j), 303(r), 303(y).

**C. Description and Estimate of the Number of Small Entities to Which Rules Will Apply**

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.<sup>4</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>5</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>6</sup> A small business concern is one that: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>7</sup> Below, we further describe and estimate the number of small entity licensees that may be affected by the adopted rules.

**D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements**

The Notice proposes a number of rule changes that could affect the reporting, recordkeeping, and other compliance requirements for small businesses licensed to provide the contemplated new service. Among other things, these proposed rule changes include applying

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<sup>4</sup> 5 U.S.C. 604(a)(3).

<sup>5</sup> 5 U.S.C. 601(6).

<sup>6</sup> 5 U.S.C. 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. 632). Pursuant to the RFA, the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after the opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the *Federal Register*.” 5 U.S.C. 601(3).

<sup>7</sup> Small Business Act, 15 U.S.C. 632 (1996).

the information requirements and procedures currently in part 1 of the Commission's rules to applications for air-ground mobile broadband licenses.

The Notice also proposes to require new air-ground mobile broadband licensees to complete coordination agreements with licensees in the National Aeronautics and Space Administration's Tracking and Data Relay Satellite Service and with radio astronomy observatories.

Further, the Notice invites comment on whether to adopt interim reporting requirements to ensure that licensees are making timely and quantifiable progress on their obligations to construct and provide service. If the Commission adopted a rule requiring interim reporting requirements, the rule would presumably require the licensee to demonstrate in some manner that it has taken efforts to construct its air-ground mobile broadband system.

In addition, the Notice proposes requiring licensees to file a notification within 15 days of the end of their ten-year license term demonstrating that they have met their build-out requirements. Specifically, each construction notification would include electronic coverage maps and supporting documentation, which must be truthful and accurate and must not omit material information that is necessary for the Commission to determine compliance with its construction requirement.

Also, the Notice proposes requiring applicants for renewal licenses to file a detailed renewal showing, demonstrating that they are providing service to the public or are using the spectrum for private, internal communication to the extent permitted by the Commission, and substantially complying with the Communications Act, and the Commission's rules and policies, including any applicable performance requirements.

**E. Steps Taken to Minimize Significant Economic Impact on Small Entities,  
and Significant Alternatives Considered**

The RFA requires that, to the extent consistent with the objectives of applicable statutes, the analysis shall discuss significant alternatives such as: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.<sup>8</sup>

The Notice solicits comment on alternatives to the proposed rules for air-ground mobile broadband in the 14.0-14.5 GHz band.

**F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules**

None.

**Ordering Clauses**

IT IS ORDERED that, pursuant to the authority contained in sections 4(i), 4(j), 7(a), 302(a), 303(c), 303(e), 303(f), 303(g), 303(j), 303(r), and 303(y) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), 157(a), 302(a), 303(c), 303(e), 303(f), 303(g), 303(j), 303(r), 303(y), this Notice of Proposed Rulemaking in GN Docket No. 13-114 IS ADOPTED.

IT IS FURTHER ORDERED pursuant to sections 4(i) and (j) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), (j), 303(r), and § 1.407 of

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<sup>8</sup> 5 U.S.C. 603(c)(1), (c)(4).

the Commission's rules, 47 CFR 1.407, that the Petition for Rulemaking filed by Qualcomm, Inc. on July 7, 2011, IS GRANTED to the extent provided in this Notice.

**List of Subjects in 47 CFR Parts 2 and 22**

Communications, Satellites, Telecommunications.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,

Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR parts 2 and 22 as follows:

**PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;  
GENERAL RULES AND REGULATIONS**

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:
  - a. Page 49 is revised.
  - b. In the list of United States (US) Footnotes, footnote US133 is revised.

The revisions read as follows:

**§ 2.106 Table of Frequency Allocations.**

\* \* \* \* \*

Table of Frequency Allocations			14-17.7 GHz (SHF)		Page 49
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research			14-14.2 Space research US133	14-14.2 FIXED-SATELLITE (Earth-to-space) NG54 NG183 NG187 Mobile-satellite (Earth-to-space) Space research Aeronautical mobile US133	Public Mobile (22) Satellite Communications (25)
5.504A 5.505 14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research			14.2-14.4	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG54 NG183 NG187 Mobile-satellite (Earth-to-space) Aeronautical mobile	
5.504A 5.505 5.508 14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite			
5.504A	5.504A	5.504A			
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth)			14.4-14.47 Fixed Mobile		
5.504A 14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy			14.47-14.5 Fixed Mobile	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG54 NG183 NG187 Mobile-satellite (Earth-to-space) Aeronautical mobile	
5.149 5.504A			US133 US203 US342	US133 US203 US342	
14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research			14.5-14.7145 FIXED Mobile Space research 14.7145-14.8 MOBILE Fixed Space research	14.5-14.8	



14.8-15.35 FIXED MOBILE Space research	14.8-15.1365 MOBILE SPACE RESEARCH Fixed US310	14.8-15.1365    US310	
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## UNITED STATES (US) FOOTNOTES

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US133 In the bands 14.0-14.2 GHz and 14.47-14.5 GHz, the following provisions shall apply to the operations of Earth Stations Aboard Aircraft (ESAA) and to the Aeronautical Mobile Service (AMS):

(a) In the band 14.0-14.2 GHz, ESAA and AMS licensees planning to operate within radio line-of-sight of the coordinates specified in 47 CFR 25.227(c) are subject to prior coordination with NTIA in order to minimize harmful interference to the earth stations of NASA's Tracking and Data Relay Satellite System (TDRSS).

(b) In the band 14.47-14.5 GHz, operations within radio line-of-sight of the radio astronomy stations specified in 47 CFR 25.226(d)(2) are subject to coordination with the National Science Foundation in accordance with 47 CFR 25.227(d).

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## PART 22 –PUBLIC MOBILE SERVICES

3. The authority citation for Part 22 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 222, 303, 309, and 332.

4. Add § 22.232 to subpart B to read as follows:

**§ 22.232 14.0-14.5 GHz band subject to competitive bidding.**

Mutually exclusive initial applications for 14.0 –14.5 GHz band licenses are subject to competitive bidding. The general competitive bidding procedures set forth in 47 CFR part 1, Subpart Q will apply unless otherwise provided in this subpart.

5. Add § 22.233 to subpart B to read as follows:

**§ 22.233 Designated entities in the 14.0-14.5 GHz bands.**

(a) Eligibility for small business provisions. (1) A small business is an entity that, together with its affiliates, its controlling interests, the affiliates of its controlling interests, and the entities with which it has an attributable material relationship, has average gross revenues not exceeding \$40 million for the preceding three years.

(2) A very small business is an entity that, together with its affiliates, its controlling interests, the affiliates of its controlling interests, and the entities with which it has an attributable material relationship, has average gross revenues not exceeding \$15 million for the preceding three years.

(b) Bidding credits. A winning bidder that qualifies as a small business as defined in this section or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter. A winning bidder that qualifies as a very small business as defined in this section or a consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter.

6. Add subpart K to read as follows:

**Subpart K – Air-Ground Mobile Broadband Service**

Sec.

22.1100 Scope.

22.1101 Definitions associated with air-ground mobile service.

22.1102 Permissible communications.

22.1104 Frequencies.

22.1106 Service areas.

22.1110 Regulatory status.

22.1111 Eligibility.

22.1112 License period.

22.1113 Construction requirements.

22.1114 Renewal criteria.

22.1115 Geographic partitioning and spectrum disaggregation.

22.1116 Initial authorization.

22.1118 Discontinuance of service.

22.1120 Protecting GSO satellite systems from harmful interference from air-ground mobile broadband.

22.1122 Out of band emissions (OOBE) requirement for two separate air-ground mobile broadband systems.

**§ 22.1100 Scope.**

This subpart governs the licensing and operation of the air-ground mobile broadband service in the 14.0-14.5 GHz band. The licensing and operation of these stations and systems is also subject to rules elsewhere in this part that apply generally to the public mobile services. However, in case of conflict, this subpart governs.

**§ 22.1101 Definitions associated with air-ground mobile service.**

Air-Ground Mobile Broadband Equipped Aircraft. Aircraft equipped with air-ground mobile broadband communications technology.

Air-Ground Mobile Broadband Service. An air-ground mobile broadband service that operates in the 14.0 to 14.5 GHz band and provides high-data-rate connectivity between terrestrial ground stations and aircraft stations flying above the contiguous United States (“CONUS”).

Base Stations. Fixed terrestrial-based air-ground mobile broadband communications stations that provide air-ground mobile broadband to air-ground mobile broadband equipped aircraft.

**§ 22.1102 Permissible communications.**

The 14.0-14.5 GHz band may be used to provide air-ground mobile broadband. Such service shall be provided in a manner consistent with § 2.106 of this chapter.

**§ 22.1104 Frequencies.**

Two channel block(s) are available for assignment in the 14.0-14.5 GHz air-ground mobile broadband service:

(a) A Block: 14.0-XX.XX GHz

(b) [B Block: XX.XX-14.5 GHz]

**§ 22.1106 Service areas.**

Service areas for 14.0-14.5 GHz air-ground mobile broadband are available on a nationwide basis. For the purposes of this paragraph, “nationwide” refers to a geographic market area covering the contiguous United States, i.e. the United States excluding Alaska, Hawaii, and island territories

**§ 22.1110 Regulatory status.**

(a) Single authorization. Authorization will be granted to provide any or a combination of the following services in a single license: common carrier, non-common carrier, private internal communications, and broadcast services. A licensee may render any kind of communications service consistent with the regulatory status in its license and with the Commission's rules applicable to that service. An applicant or licensee may submit a petition at any time requesting clarification of the regulatory status for which authorization is required to provide a specific communications service.

(b) Designation of regulatory status in initial application. An applicant shall specify in its initial application if it is requesting authorization to provide common carrier, non-common carrier, private internal communications, or broadcast services, or a combination thereof.

(c) Amendment of pending applications. The following rules apply to amendments of a pending application.

(1) Any pending application may be amended to:

(i) Change the carrier regulatory status requested, or

(ii) Add to the pending request in order to obtain common carrier, non-common carrier, private internal communications, or broadcast services status, or a combination thereof, in a single license.

(2) Amendments to change, or add to, the carrier regulatory status in a pending

application are minor amendments filed under §1.927 of this chapter.

(d) Modification of license. The following rules apply to amendments of a license.

(1) A licensee may modify a license to:

(i) Change the regulatory status authorized, or

(ii) Add to the status authorized in order to obtain a combination of services of different regulatory status in a single license.

(2) Applications to change, or add to, the carrier status in a license are modifications not requiring prior Commission authorization. The licensee must notify the Commission within 30 days of the change. If the change results in the discontinuance, reduction, or impairment of an existing service, the licensee is subject to the provisions of § 22.1118.

**§ 22.1111 Eligibility.**

Any entity other than those precluded by section 310 of the Communications Act of 1934, as amended, 47 U.S.C. 310, is eligible to hold a license under this part.

**§22.1112 License period.**

Initial authorizations will have a term not to exceed ten years from the date of initial issuance or renewal.

**§ 22.1113 Construction requirements.**

Licensees of 14.0-14.5 GHz air-ground mobile broadband, must, as a performance requirement, make a showing of “substantial service” in their license area within the prescribed license term set forth in § 22.1112.

(a) “Substantial service” is defined as service which is sound, favorable and substantially above a level of mediocre service which just might minimally warrant renewal. Failure by any licensee to meet this requirement will result in forfeiture of the license and the licensee will be ineligible to regain it.

(b) Each 14.0-14.5 GHz air-ground mobile broadband system subject to the requirements of this section must demonstrate substantial service within 10 years after grant of the authorization.

Substantial service may be demonstrated by, but is not limited to, the following “safe harbor” provision: The construction and operation of ground stations that provides robust, uninterrupted service on routes serving at least 50 airports classified as large or medium hubs (as measured by the most recent Federal Aviation Administration data for annual passenger enplanements) within ten years of license grant.

**§ 22.1114 Renewal criteria.**

Air-ground mobile broadband licensees in the 14.0-14.5 GHz band must file a renewal application in accordance with the provisions set forth in §1.949, and must make a showing of substantial service, independent of its performance requirements, as a condition for renewal at the end of each license term.

**§ 22.1115 Geographic partitioning and spectrum disaggregation.**

(a) Eligibility. (1) Parties seeking approval for partitioning and disaggregation shall request from the Commission an authorization for partial assignment of a license pursuant to §1.948.

(2) Licensees in 14.0-14.5 GHz air-ground mobile broadband may apply to partition their licensed geographic service area or disaggregate their licensed spectrum at any time following the grant of their licenses.

(b) Filing requirements. Parties seeking approval for geographic partitioning, spectrum disaggregation, or a combination of both must apply for a partial assignment of authorization by filing FCC Form 603 pursuant to § 1.948 of this chapter. Each request for geographic partitioning must include an attachment defining the perimeter of the partitioned area by geographic coordinates to the nearest second of latitude and longitude, based upon the 1983 North American Datum (NAD83). Alternatively, applicants may specify an FCC-recognized service area (e.g., Basic Trading Area, Economic Area, Major Trading Area, Metropolitan Service Area, or Rural Service Area), county, or county equivalent, in which case, applicants need only list the specific FCC-recognized service area, county, or county equivalent names comprising the partitioned area.

(c) License term. The license term for a partitioned license area or disaggregated spectrum license is the remainder of the original licensee's license term.

(d) Performance requirements. Each party to a geographic partitioning, spectrum disaggregation, or a combination of both must individually meet any applicable performance requirements (i.e., construction and operation requirements). If a licensee fails to meet any performance requirements on or before the required date, its authorization will terminate automatically on that date without further Commission action pursuant to § 1.946 of this chapter.

(e) Unjust enrichment. Licensees making installment payments or that received a bidding credit, that partition their licenses or disaggregate their spectrum to entities that do not meet the eligibility standards for installment payments or bidding credits, are subject to the unjust enrichment requirements of § 1.2111 of this chapter.

**§ 22.1116 Initial authorization.**

(a) An applicant must file a single application for an initial authorization for all markets won and frequency blocks desired. Initial authorizations shall be granted in accordance with §§ 22.1104, 22.1106 of this chapter. Applications for individual sites are not required and will not be accepted, except where required for environmental assessments, in accordance with §§ 1.1301 through 1.1319 of this chapter.

(b) Initial authorizations for 14.0-14.5 GHz air-ground mobile broadband shall be for the amount of spectrum in accordance with § 22.1104. Authorizations will be on a nationwide service area basis as defined in § 22.1106.

**§ 22.1118 Discontinuance of service.**

(a) Termination. A 14.0-14.5 GHz air-ground mobile broadband licensee's authorization will automatically terminate, without specific Commission action, if it permanently discontinues service. Permanent discontinuance of service is defined as 180 consecutive days during which a licensee is not providing service to aircraft or subscribers

(b) Filing requirements. A licensee that permanently discontinues service as defined in this



section must notify the Commission of the discontinuance within 10 days by filing FCC Form 601 or 605 requesting license cancellation. An authorization will automatically terminate, without specific Commission action, if service is permanently discontinued as defined in this section, even if a licensee fails to file the required form requesting license cancellation.

(c) Extension request. A licensee may file a request for a longer discontinuance period for good cause. An extension request must be filed at least 30 days before the end of the 180-day discontinuance period. The filing of an extension request will automatically extend the discontinuance period a minimum of the latter of an additional 30 days or the date upon which the Wireless Telecommunications Bureau acts on the request.

**§ 22.1120 Protecting GSO satellite systems from harmful interference from air-ground mobile broadband.**

The aggregate increase in interference ( $\Delta T/T$ ) from all air-ground mobile broadband aircraft and base stations into the uplink of GSO satellites shall not exceed one percent. This one percent  $\Delta T/T$  limit may be met by complying with paragraphs (a) through (c) of this section:

(a) For a baseline air-ground mobile broadband system consisting of 600 beams (e.g., 150 base station sites and 4 beams per site) operating on a given band of spectrum, the transmitted power spectral density from a single base station beam into the GSO arc must not exceed -74.5 dBW/Hz. If the number of base station beams is increased beyond 600, then the total transmitted power toward the GSO arc must be adjusted accordingly, such that the total transmitted power toward the GSO arc from all beams is not greater than -46.7 dBW/Hz. If the number of air-ground mobile broadband base stations increases from 150 to 250, the single beam EIRP density must be less than the value

$$-74.5 - 10 \log\left(\frac{n}{150}\right) \text{ dBW/Hz} \quad \text{for } 150 \leq n \leq 250$$

and the aggregate EIRP density from all beams must be less than

$$-46.7 - 10 \log\left(\frac{n}{150}\right) \text{ dBW/Hz} \quad \text{for} \quad 150 \leq n \leq 250$$

where n is the number of base stations.

(b) Transmissions from an air-ground mobile broadband aircraft stations must not exceed an EIRP density of 3 dBW/2 megahertz. Furthermore, the aggregate EIRP from all air-ground mobile broadband aircraft stations toward the GSO arc must not exceed -47 dBW/Hz. When deriving the aggregate EIRP density toward the GSO arc, the aircraft cruise level roll angle of  $\pm 5^\circ$  in elevation must be taken into account.

(c) Every air-ground mobile broadband base station may increase its transmit power by up to 6 dB to compensate for rain fade. In compensation for the increase in power, the air-ground mobile broadband base station must reduce the number of beams it transmits to maintain the same maximum transmitted power.

**§ 22.1122 Out of band emissions (OOBE) requirement for two separate air-ground mobile broadband systems.**

If two separate licensees deploy air-ground mobile broadband systems within distinct portions of the 14.0 to 14.5 GHz band, the power level of any emission outside an air-ground mobile broadband licensee's frequency band of operation shall be attenuated below the transmitter power of P watts (with averaging performed only during periods of transmission) within the licensee's band of operation by at least  $43 + 10 \log(P)$  dB.

Compliance with this rule shall be measured via use of instrumentation employing a resolution bandwidth of 1 megahertz or greater, except that in the 1 megahertz bands immediately adjacent to the licensee's frequency band of operation, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all

cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (that is, 1 megahertz or 1 percent of the emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least 26 dB below the transmit power level.

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